A. TURNBULL, M.D., EDIN.,

ON

PRUSSIC ACID VAPOUR, &c.

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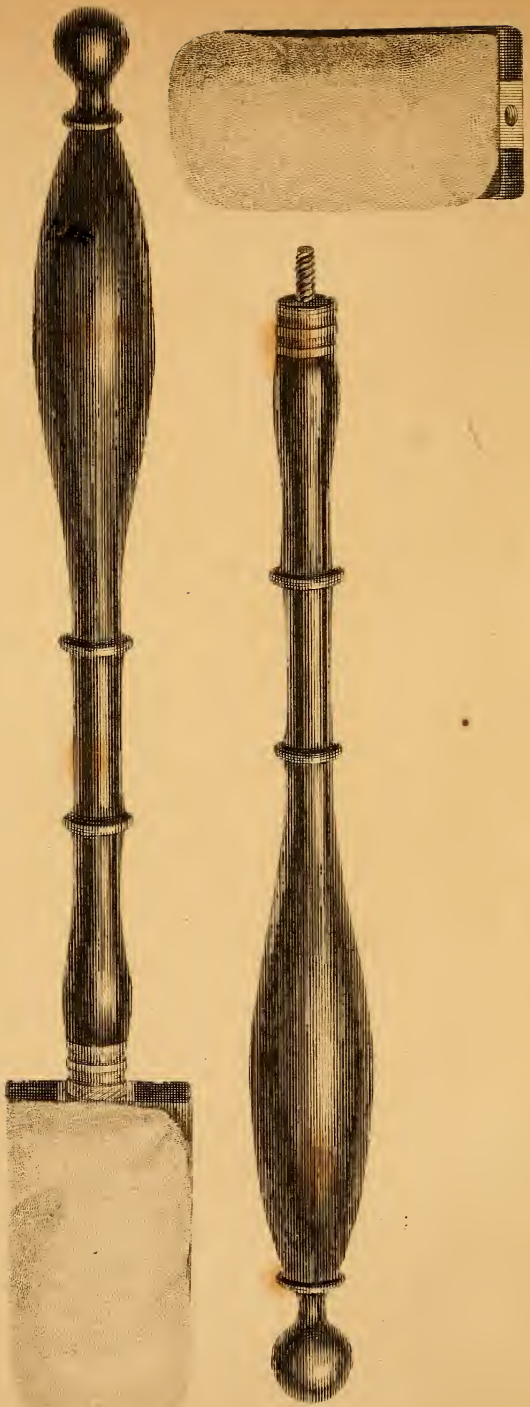

TREATMENT

OF THE

DISEASES OF THE EYE,

BY MEANS OF

PRUSSIC ACID VAPOUR,

AND OTHER MEDICINAL AGENTS.

BY

A. TURNBULL, M.D., EDIN.,

HONORARY PHYSICIAN TO THE INDIGENT BLIND VISITING SOCIETY; AUTHOR OF "A TREATISE ON PAINFUL AND NERVOUS DISEASES," "VERATRIA, ACONITINA, DELPHINIA," ETC., ETC.

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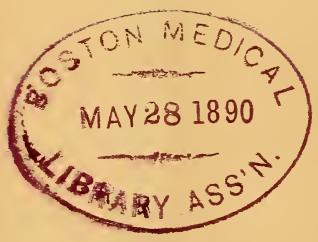

PREFACE.

Amid a multiplicity of professional duties I have appropriated a few spare minutes to the preparation of this little work. It must, under such circumstances, have many literary imperfections, for which I must crave the indulgence of the Profession. But I trust it embodies some useful and original principles and facts, that are, at least, entitled to a dispassionate consideration. I take this opportunity of thanking those Medical Gentlemen who so kindly, and so patiently watched several of the cases recorded in these pages.

48, Russell Square, Feb. 1st, 1843.

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INTRODUCTION.

In submitting to the public the following interesting cases illustrative of the effects of my mode of treating diseases of the eye, I have prefixed to them the original communications transmitted by me to the *Lancet* and the *Medical Gazette*. My reason for so doing is this—I wish it to be seen by actual comparison, that in every instance the confidence I have expressed in the efficacy of these medicines has not been overrated; on the contrary, it will be seen that I have said less than the facts really warrant.

It will also be found, that the cases which have come under my treatment are, without exception, such as have been regarded either as hopeless, or at least such as have previously

enjoyed, without sensible benefit, all the advantages of our best Ophthalmic Institutions. It cannot therefore be contended, that the ordinary treatment would have proved equally efficacious if it had been previously tried.

I have also given the cases that are at present under my treatment, in order that all who take an interest in the subject may have ample opportunity of watching their progress, and forming, from their own observations, just conclusions.

I have also added some important observations concerning the action of the essential oils on the eye, as exhibited both externally and internally.

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ACTION OF HYDROCYANIC ACID, &c.

UPON

THE EYE.

In September, 1841, I made the following communication to the editor of the *Medical Gazette*, which he kindly inserted: —

It is a well-known fact, that the eyes of those who have been destroyed by hydrocyanic acid show none of the usual symptoms of dimness for a length of time after death.* On the contrary,

* Morbit appearances produced by hydrocyanic acid in a case related by Hufeland.

The inspection was made the day after death. The eyes were still glistening like those of a person alive; but the countenance was pale and composed like one asleep. The arteries and left cavities of the heart were empty, and the veins and right cavities distended. — *Christison on Poisons, page* 708.

In most instances venous turgescence and emptiness of the

the eye is clear and the pupil much dilated. This satisfied me that the acid exerted a specific action upon the eye, which might be made available as a medical agent for relieving many of the diseases to which that organ is so subject.

My first experiment was undertaken in 1837, with the diluted acid, by dipping a sponge into

arterial system is commonly remarked throughout the whole body.—*Christison on Poisons, page* 710.

It appears that long after death the eye, as in Hufeland's case, has a peculiar glistening and staring expression, so as to render it difficult to believe that the individual is really dead ; and this appearance has been considered by Dr. Paris so remarkable, as even alone to supply decisive evidence of poisoning by hydrocyanic acid.—*Christison on Poisons, page* 711.

Numerous reports have now been made of those who have died in consequence of this poison, and the most striking effects to be observed are, the extraordinary state of the eye, which has indeed been considered as the most characteristic phenomenon, and at once to point out the cause of death : the shining, glistening, sparkling lustre of the eye has been, on most occasions, observed. No one has, so far as I am able to learn, attempted to explain this most striking appearance ; it has, however, been said, that those who die from the effects of charcoal often exhibit the same unearthly lustre.—*Dr. Sigmond on Poisoning with Prussic Acid.—The Lancet, August 26th,* 1837, *page* 797.

it, and rubbing it upon the forehead for the space of a few minutes, which gave the skin a very red appearance; but the patient experienced not the least sense of heat, and the pupil was slightly dilated. I continued to use this with very beneficial effects in incipient cataract, opacities of the cornea, inflammation, amaurosis, iritis, &c. Of late, instead of the diluted acid I have applied the *vapour* of the concentrated acid to the eye with much more decided effect, and without the slightest danger. The plan I generally adopt, is to put into an ounce-phial a drachm of the acid, and hold it in close contact with the eye, the eyelid being open, for the space of about half a minute, or until such time as the patient feels a little warmth, or the person holding the phial sees the pupil greatly dilated, and the vessels of the eye injected with blood, which is the invariable effect of the application of the acid. The patient is not sensible of pain from this peculiar state being induced, which appears to me to result from the power-

fully sedative influence of the acid,* thereby showing that two opposite powers—to wit, the stimulating and the sedative—are exerted at the same time; and thereby the uneasiness arising generally from a stimulant alone is prevented. Its great power in removing these diseases chiefly arises from the two powers being so blended, and thus enabling the eye to bear a sufficient stimulating action without injury. The person who holds the acid to the eye should *be careful not to allow the patient to smell it.*

* *Lancet, Sept. 16th, 1837, page* 883.—In whatever manner it is prescribed or administered, either therapeutically or as a poison, hydrocyanic acid operates directly on the nervous centres.—*Professor A. T. Thompson.*

The *Medical Gazette* and the *Lancet* gave insertion to the following statement of mine, of date Oct. 20, 1842.

Sir,—In October, 1841, I gave an account of the action of the vapour of *hydrocyanic acid* upon diseases of the eye. Since that period I have been engaged in investigating the action of various other bodies on the same organ, and under the same form.

One reason why I did not rest satisfied with the effects produced by the hydrocyanic acid, was, that its action, like that of all other medicines, decreased in power by continued application; thereby rendering it necessary to have occasional recourse to other medicines, in order to insure a more speedy recovery. Another reason was, the reluctance of many individuals to submit the eye to the action of so potent a medicine.

The first medicines to which I shall refer, and which I have employed with some success, are the *chlorocyanic acid* and *sulphuretted chyazic*

acid. The plan I pursue is that of putting a drachm of one of the medicines into a bottle (containing a small piece of sponge) of about two-ounce size, having a mouth precisely fitted to the eye, and with a ground-glass stopper.

The action of these medicines is very different from that of the *hydrocyanic acid*, in as far as they both stimulate the eye, and produce much greater warmth and irritation, with less dilatation of the pupil. Few, however, can bear the *chlorocyanic acid* to be applied longer to the eye than half a minute; though, in a minute after its application, all irritation is removed, and the eye feels perfectly at ease.

The next medicine which I have employed in the form of vapour was the chloruret of iodine. This medicine produces very little warmth or uneasiness to the eye, if continued for the space of two minutes or upwards; but a sensation of irritation, accompanied with a flow of tears, takes place on its removal. It contracts the pupil, and in no case have I seen it dilate it.

Its vapour rises very readily, and does not leave the yellow disagreeable colouring on the skin produced by the vapour of iodine when uncombined, which is a great drawback in the use of iodine in diseases of the eye.

The last medicine which I have employed is the bisulphuret of carbon, which is so volatile, that the application of it to the eye, when the bottle is held in a warm hand for a few seconds, is as much as can be borne, in consequence of the intense prickling heat and flow of tears which it occasions. Owing to this fact, I generally use it by causing the patient to shut the eyelid during its application, which can then be continued for a minute or two, with the same beneficial effect upon the eye, without inconvenience to the patient. It generally contracts the pupil, and very seldom dilates it.

I used to employ iodine by putting it into the same bottles, and immersing it in hot water, and in its state of vapour applying it to the eye;

but I find it answers much better when dissolved in the bisulphuret of carbon.

It is my intention, shortly, to give a full account of the action of these medicines upon the various forms of disease to which the eye is subject, and also what particular disease each medicine is best calculated to remove. At the same time I shall state such instances of failure as have occurred in my experience, in order that a just estimate may be formed of the value and importance of each medicine.

It may not be out of place here to state, that I have employed, with great success, the bisulphuret of carbon to enlarged indurated lymphatic glands. In the first instance, I rubbed equal quantities of the bisulphuret of carbon and alcohol upon the parts affected, but without any effect upon the glands. But as its effects were so great when its vapour was confined to the eye, I was led to apply it in the form of vapour, and by means of glass bottles similar to those I have described. By these means I excluded the

action of the medicine from the external air, and thereby prevented its speedy evaporation. When it had been applied about one minute, the patient felt the part very cold, but immediately after a gradual heat, accompanied with great prickling; the heat increasing the longer the medicine was kept in contact with the part, until it could be no longer endured. On removing the glass, the part was red to an extent two or three times greater than the part enclosed. In a few days the change in the size of the glands was very great; and by its daily repetition, a complete and speedy removal of the disease was effected. I also find that its action upon diseased glands is more decided if the surface of the skin is well moistened with water previous to the application of the bottle to the part.

The water, in fact, not only prevents the escape of the vapour between the glass and the skin, but assists the imbibition of the carbon; a point of the highest importance, inasmuch as all its action on the part depends upon the ex-

clusion of the atmosphere from the vapour. I may here observe that these applications occasion no injury whatever to the skin.

I have also found the *bisulphuret of carbon*, and the chlorocyanic acid, valuable medicines in the removal of deafness, depending upon a want of nervous energy and deficiency of wax. The mode of its application is substantially the same as that which I employ in diseases of the eye, with this difference only, that the bottle is formed with a small neck and stopper adapted to the size of the orifice of the ear, and held close to the organ until a considerable degree of warmth is produced.

The action of these medicines, which contain so large a share of carbon, arises from the carbon in the vapour permeating the cuticle, and coming in contact with the oxygen in the vessels, which is conveyed through every part of the frame by inspiration and otherwise, and thereby forming carbonic acid gas, which evolves heat in the ratio of the quantity consumed by the oxygen.

The following quotations from Professor Liebig, in his work on "Organic Chemistry," sufficiently prove the correctness of this position:—"It is only in those parts of the body to which arterial blood, and, with it, the oxygen absorbed in respiration, is conveyed, that heat is produced. Hair, wool, or feathers, do not possess an elevated temperature. This high temperature of the animal body, or, as it may be called, disengagement of heat, is uniformly, and under all circumstances, the result of the combination of a combustible substance with oxygen. In whatever way carbon may combine with oxygen, the act of combination cannot take place without the disengagement of heat. We can no longer doubt that gases of every kind, whether soluble or insoluble in water, possess the property of permeating animal tissues, as water penetrates unsized paper."

Does not the action of medicines containing so large a portion of carbon, which can be brought into contact with the whole external surface of

the body, and thereby capable of being easily disengaged, suggest a method of relieving pulmonary disease likely to be attended with no ordinary success, by calling into greater activity the action of the skin, and thereby materially lightening the labour of the lungs? Are we not the more encouraged to expect such remedial influence in diseases of the lungs, from the fact of its great power in removing indurated glands, which are so common accompaniments of consumption? There can be no doubt of the usefulness of bisulphuret of carbon in skin diseases.

I have submitted these observations under the conviction that they embody principles which may be carried out, and made of great utility to mankind.

I am, Sir, your obedient servant,

A. Turnbull, M.D.

48, Russell Square, Oct. 20, 1842.

A few weeks after the appearance of the above (Nov. 8, 1842), I wrote to the Editor of the *Literary Gazette* as follows:—

REMARKS ON THE ACTION OF CARBON, ETC.

(*To the Editor of the* "Literary Gazette.")

48, Russell Square, Nov. 8, 1842.

Sir,—I beg leave to tender my sincerest thanks for your kind notice in the last *Gazette* of my recent discoveries on the treatment of diseases of the eye, &c. Allow me to intrude for once in your crowded columns, by referring to what you accidentally omitted—viz. the manner of applying the *bisulphuret of carbon*, and also to add a few reasons illustrative of the fact which you have quoted from me, that its action depends on its union with the oxygen. The plan I adopt is this:—I put a drachm of the bisulphuret of carbon into a two-ounce bottle; the medicine is so volatile that the heat of the hand causes the vapour rapidly to rise, and come into contact with the skin. The action is more decided if the

skin is previously moistened with water; as the water not only prevents the escape of the vapour between the glass and the skin, but also excludes the external air, a point of the very highest importance. In my paper, which appeared in the *Lancet*, of October 29th, I stated, that "when it had been applied about one minute, the patient felt the part very cold, but immediately after a gradual heat, accompanied with great prickling; the heat increasing the longer the medicine was kept in contact with the part, until it could no longer be endured. On removing the glass the part was red, to an extent two or three times greater than the part enclosed. These applications occasion no injury whatever to the skin." Showing that the action of the bisulphuret of carbon depends on its union with the oxygen in the blood-vessels, I will merely state the following experiments:—Carbonic acid gas was applied in a similar bottle, and in the same way, to the skin, the external air being excluded, and the skin moistened with water, for the space of

ten minutes; but neither redness nor any sensible heat was induced; for this satisfactory reason, that heat is the consequence of oxidation with the carbon, which oxidation, in the case of carbonic acid gas, had of course been previously effected. *Alcohol, sulphuric ether, nitric ether, and* many other *ethers*—all of which contain a large portion of carbon—were similarly tried, but had no effect; for the same reason—viz. that it is already in a state of union with oxygen in all these highly carbonized bodies.

I remain, Sir, your obedient servant,

A. Turnbull, M.D.

CASE 1.

Opacity of the Cornea, the sequel of Small-pox.

John Wright, a porter, aged 23, No. 10, Bear Yard, says that he has been nearly blind in the right eye from small-pox, since he was two years old. Five years since he was attacked with violent ophthalmia, in consequence of exposure to cold. He then applied to one of our Ophthalmic Institutions, where he remained as an out-patient for eight months. For the first six months he had, thrice a week, caustic applied to his left eye, after which black ointment for the remainder of the time; but without receiving benefit. He then went to another institution, where he remained an out-patient for seven months. The treatment here consisted in dropping into the eye a liquid, and at other times a

powder was shaken into it, from which he derived no benefit. He then consulted a private practitioner, who relieved him; but, not satisfied with this, he went to another surgeon, who said that the cause of his blindness was owing to a little squint, and he submitted the eye to be operated upon for that purpose; but no good was derived from this operation. None of the medical men attempted to do anything to the right eye.

In September, when I first saw him, his left eye was very much diminished in size, and the cornea studded with white spots; the vision very imperfect, and constantly discharging water. The right eye was so opaque that neither iris nor pupil was to be seen, and he could only see the shadow of an object.

On the 23rd of January the left eye had got tolerably clear and free from all specks, but still subject to water when exposed to the wind.

The right eye is now becoming transparent, and vision in it is improving. He states that it will soon be the best eye.

CASE 2.

Opacity of the Cornea from Inflammation.

Ann Fitzgibbons, aged 13, daughter of Thos. Fitzgibbons, 11, Stratton Mews, is a day scholar at the Blind School, Queen Square.

Her father states that in infancy she lost the left eye, owing to an attack of inflammation. The right eye four years since became similarly affected. She has been a patient at two Ophthalmic Institutions, where she attended for several months without any benefit. She was brought to me by her father on the 1st of October, 1842, who stated that for the last four years she had been obliged to be led, and could only discern the shadow and outline of objects, but could not distinguish them.

On examining the left eye, I found it shut, and all the humours lost. The right eye was much diminished in size, and the cornea was very opaque, excepting at the upper part, where a small portion of light was admitted. The

bottle containing the acid was held to the left eye as well as to the right, to ascertain what effect would be produced. To my surprise, in the period of a month the chambers of the eye became partially filled with aqueous humours, to the extent of at least half the size of a healthy eye; the pupil was small, but the patient could not see in the slightest degree. The right eye has become almost transparent, and she can now see with it sufficiently well to be able to go anywhere. Indeed, her sight has become almost perfect. The change is so great that many are disposed to question the identity of the girl, and the father is frequently asked whether the girl is really his own daughter, whose eyes were so disorganized.

CASE 3.

Inflammation, ending in Opacity of the Cornea in the right eye and Staphyloma in the left.

William Grindley, aged 37, boot-maker, formerly of 16, Whitecomb Street, Pall Mall,

East, now of St. James's Workhouse, states that he was attacked with acute inflammation in both eyes in 1839. He at first had the advice of private practitioners, and subsequently went to two different Ophthalmic Hospitals. He remained in one eleven months, in the other fifteen. It appears from his own account that his sufferings were very great, for he asserts his eyes and eye-lids were swollen very much. The treatment consisted in bleeding, cupping on the temples, lancing frequently the eye and eye-lids; caustic was applied to the eyes, and seatons to the nape of the neck; leeches. The patient had two caustic issues in the temples; he was salivated, and had administered to him various potent drugs.

On the 9th of August he was sent to me from the Board of St. James's Workhouse, when he could scarcely discern light from darkness. He said that he had been led about for the last three years. The left eye was afflicted with staphyloma, and was perfectly opaque. The

cornea of the right eye was covered with a dense opacity, so much so that no appearance of iris or pupil could be discerned through it. The right was not so unnaturally prominent as was the left eye. The vapour in this case was daily applied, and the progress of cure was so rapid, that in the course of a month he was able to come to me from St. James's without his accustomed guide. At Christmas he obtained permission from the Board to be absent for a few days for the purpose of visiting his wife and children. It was his wish to see the faces of those near and dear to him; for in his former visits he could only hear them talk, for not one glimpse of their countenances was he able to obtain. The cornea of the right eye is rapidly becoming transparent. The convexity of the left eye is still considerable, but the opacity is so far removed as to give evidence that a continuation of the medicine will render it again perfect, although it must take a considerable time to effect so desirable an object.

CASE 4.

Two cases of ~~Atonnaco~~ Ophthalmia, ending in Opacity of the Cornea.

Sarah Hopping, aged 15, daughter of Thomas Hopping, boot-maker, 20, King Street, Drury Lane, and of the Blind School, Queen's Square, about nine years ago had a violent attack of inflammation in both eyes. She was taken to an infirmary, and remained there for many months, where she became perfectly blind. She was afterwards taken to two Ophthalmic Hospitals as an out-patient—one for six months, another three. The treatment generally was lancing the inner eye-lids, and applying caustic to both the eyes and temples, leeching and blistering both the neck and temples often. The left eye was altogether opaque, and did not show the least appearance of either iris or pupil when looking at it in a strong light. The right eye appeared quite lost, for there was only in the socket a small red tumour, about the size of a pea.

The vapour was applied, and at the present time the opacity is so far gone that she can see to walk alone; but there yet remains much to be removed.

Her sister Elizabeth, aged 12, was similarly affected, but the disease had not attained to the same height. She is now almost well.

CASE 5.

Case of Ophthalmia, terminating in an Opacity of the Cornea.

John Gadd, aged 31, of 16, Little Britain, bookbinder, states that he has been blind and unable to guide himself for upwards of twelve months, but for some months previously he felt himself gradually losing the sight of his right eye. He went to an Ophthalmic Institution, and in two or three days he was seized with a violent attack of ophthalmia, which he attributed to the applications used for his recovery. He did not

know the nature of the ointment inserted in his eyes, but was told it was black ointment. In ten days he visited another Ophthalmic Institution, where he remained for two months. In this institution a liquid was dropped into his eye, leeches were applied every night for a week, issues were inserted in the temples, carbonate of iron was administered for six weeks, and counter-irritants were applied to the neck.

From this time he became quite blind. He then went to another Ophthalmic Institution, where he was cupped in the temples; the eyes were scarified, aperient medicines were given, and lotions used. The inflammation still continued, and he was unable to lift his head, or allow the bandages to be taken off his forehead, without experiencing the most excruciating pain.

In this state he was brought to me on the 9th of September, 1840, when I ordered for each eye two drops of the oil of almonds (after being warmed) to be put into the eyes. The relief that he experienced was so great, that he said

he felt as if he were in another world. In eight days the pain had greatly diminished. He was enabled to open his eye-lids, but could discern no object whatever. I then ordered castor oil to be dropped into each eye, for the purpose of removing the opacity. He left me at the end of December, at which time he could see very imperfectly; but returned to me in January, 1843, when the opacity of the cornea still continued. He has had, almost daily, the prussic acid vapour applied to his eye. He is at the present time so well that he can read the smallest diamond print.

CASE 6.

Opacity of the Cornea and Staphyloma.

Georginia Larkins, aged 10, at No. 25, Grafton Street, Newport Market, and at the Blind School, Queen Square. Her aunt states that this patient has been blind since she was six

days old, in consequence of an attack of inflammation, which gave rise to a great discharge from the eyes. In her infancy fluids of various kinds were injected underneath the eye-lids, and when four months old she was taken for three years regularly to an Ophthalmic Hospital, where she was told that the right eye was destroyed. The left eye had caustic applied to it for a length of time thrice a week. Ointment was then applied underneath the eye-lids until the eye became so very large that she was at last told that it was a hopeless case, and that no more could be done for her. Her next visit was to an eminent oculist, who said he would not undertake the treatment of such a case. She then went to another Ophthalmic Institution, where she remained for about two years without deriving any improvement in her sight; but she was relieved from much pain.

I saw her first on the 6th of April, 1840, when the appearance of the left eye seemed to be at least twice the size of a natural eye. It

was of a dark-blue colour, standing out beyond the lids; and where the pupil ought to have been, there was a blue circular ring of lighter hue than the rest of the eye, and in the centre of this ring was a white body about the size of a pea.

The right eye was quite a contrast, for it appeared perfectly white, without the slightest appearance of iris or pupil. The eyes were continually rolling about in their sockets. Looking at the little creature, I said, "What do you expect me to do in such a fearful case?" Without waiting for a reply, I said, "I will endeavour to diminish the size of the eye, but unquestionably no hope can be held out that I can restore the use of sight."

I at first put, daily, a drop of castor oil into each eye, occasionally substituting for the castor oil the oil of almonds. This treatment in about two months diminished much the size of both eyes, and the opacity of the right eye greatly decreased; so much so that a little edge of the

pupil became visible, and the child began to see, and in four months she could walk alone. Shortly afterwards the pupil could be distinctly seen, and there appeared a white speck upon the anterior capsule of the lens. She ceased to be a patient of mine in December, 1840, but returned in January, 1842, when the prussic acid was daily applied to both eyes. The left eye is diminished about one-half in size, and light is becoming perceptible. The right has assumed a healthy appearance; the cornea is transparent, and there is still a spot upon the capsule, about the size of the eighth part of the pupil. This does not appear to impede the vision. She can now read, with the eye, the raised letters with great quickness. She was formerly taught to read the letters with her fingers; she is also learning to read common print.

When the child came to me I had not had sufficient experience of the effects of the prussic acid vapour, and I hesitated in using a remedy of such acknowledged potency until I had, with

great care, thoroughly investigated its properties. This I have been engaged in doing for several years, and I am now able to state, that in no case in which I have used it has it been attended with any injurious effects either to the eye or general health.

CASE 7.

Staphyloma of both Eyes.

Mary Ann Goodman, aged 22, of St. Giles's Workhouse, and a scholar at the Blind School, Queen Square, fourteen years ago was attacked with violent inflammation of both eyes. To remove this she was subjected to very active antiphlogistic treatment. The inflammatory symptoms subsided, after which she was regularly led for five years to an Ophthalmic Institution, at which place the right eye was operated upon five times; in addition to which she was cupped three times and bled from the arm twice;

caustic was applied frequently to the inside of the eye-lids; she was also blistered behind the ear and nape of the neck. The patient was unable to walk about without assistance; if she attempted to do so, she was knocked and jostled about.

On the 4th of March her friends brought her to me, to ascertain whether I could do anything for her. I could not hold out to her any great hope of recovery; for both eyes were affected with staphyloma, and perfectly opaque and studded with blue spots, and standing prominently out beyond the lids, and having no appearance of iris or pupil in either eye.

In the space of a fortnight the eye assumed a very different appearance; each eye became greatly diminished in size. As the opacity cleared off, a large triangular pupil made its appearance at the bottom of the iris in the right eye, enabling her to see with the eye with which, for fourteen years, she had not been able to discern light from darkness.

The progress of cure in the left eye is fully equal to that of the right; so that now she is able to walk about in the crowded streets with safety, and is intrusted to lead about two or three other persons in the Blind School. She can distinguish colours, and is able to perceive large letters.

In such a state of disorganization as this poor girl's eyes were in, it is unreasonable to anticipate that she can make much greater progress.

CASE 8.

Inverted Eye-lashes, with Opacity of the Cornea.

Diana Primrose, aged 32, of No. 2, Benborough Street, St. Giles's, says she had a violent attack, eight years back, of ophthalmia in both eyes, accompanied with great swelling and constant discharge of matter from the eye-lids, arising from the eye-lashes of both eyes being turned in.

She was an out-patient to one of the Ophthalmic Hospitals for two years, but, instead of getting better, she became worse. She then applied to another Ophthalmic Institution, where she was subjected to treatment for four months, but no improvement took place. Three years ago her sufferings prompted her to visit a third institution, when one of the surgeons cut off the upper eye-lid of the left eye, which gave rise to great pain and inflammation, but the opacity was not diminished nor the vision improved. She was obliged, during the eight years, to have her eye-lashes constantly pulled out.

She visited me on the 28th of October, 1842, when the eye-lashes of the right eye, both above and below, were still turned in, and rubbing against the cornea. The eye-lids were exceedingly red; the cornea of both eyes was nearly opaque, and only a small portion of the pupil could be observed through the opacity. Her vision was so imperfect that she could do little more than find her way about. She was often

confined to the house for a week at a time, through inflammation.

The vapour was only applied for the space of a week, after which she could see much better. The opacity was greatly diminished, and the eye-lashes began to resume their proper position. She continues to use the prussic acid vapour three or four times a week, and at the present time she is able to follow her occupations with comfort, and the eye is resuming all the appearance of health. She never has had occasion to pull one eye-lash out since I first saw her. She is now very comfortable, and can see tolerably well.

This is the first case of the kind that I have treated with prussic acid.

CASE 9.

Conical Eye.

William Stevens, aged 25, at No. 20, Grace-church Street, states that he had been for several

months at two different Ophthalmic Institutions, where many modes of treatment were adopted to improve his vision; but he was at length told they could do him no good, as the disease under which he laboured was conical eyes.

When I examined him, in May, 1840, I found the right eye so prominent that it had the appearance as if a large transparent bead had grown from the cornea. With this eye he could see a short distance. The conical state was not only greater in the left eye, but there was an opacity on the apex of the cornea. He could see nothing with it, if the right eye were shut. unless the objects of vision came in contact with his face. He continued to visit me, professionally, two or three times a week, for four months, and had a drop or two of castor oil put into both eyes each time. This treatment greatly diminished the prominency of the right eye, and lengthened the vision; but the left eye was only slightly benefited by it, although all opacity had been removed, and it had diminished in size.

In December last he again called upon me, and wished to know if more could not be done for him? He said he had continued to follow his business with the use of concave glasses, but saw with great difficulty.

The vapour was employed thrice a week for about three weeks, when his vision was restored to its natural length. I saw him on the 21st of January, and he said he was perfectly well, and could follow his business with great pleasure to himself.

CASE 10.

Amaurosis of the Left Eye, and Cataract of the Right.

George Trousdale, aged 37, horse-keeper, 37, William Street, Hampstead Road, says, that when he was 28 years of age, a shoemaker's awl was accidentally pushed through the right eyelid into the eye, which gave rise to an attack of severe inflammation in both eyes. When the

inflammation subsided he found the vision of the right eye entirely gone. The left eye became dim in May last, and his sight was much disturbed by floating clouds passing before the eye. When he looked steadily at an object the vision almost vanished. He experienced great pain in the forehead and temple on the same side.

He applied to an infirmary, where he remained as an out-patient for six weeks. He was salivated, cupped, and leeched. He was then told that the right eye was of no use, and they feared the vision of the left also was destroyed.

He then went to an Ophthalmic Institution, where he remained as an out-patient for seven weeks. He was again salivated; a liquid was dropped into his eye regularly, and he was blistered, but no good resulted.

He then went to a private oculist, under whose care he remained for six weeks. He again was salivated; but still the sight became more obscured, and the pains in his forehead and temple more acute.

I saw him first in October; he was then suffering from severe pain in the forehead and temple. The left eye was so blind that he could not distinguish, even when placed close beside it, a large bookcase. He said he could scarcely guide himself in the street. The pupil was almost immoveable. There was a white cataract in the right eye, and a total want of vision.

He has had the vapour of the prussic acid applied to both eyes almost daily since October. He can now, with the left eye, read ordinary-size print, and is free from all pain. Nearly the upper half of the cataract of the right eye is absorbed, and he is beginning to see with it. This case shows the power of the acid in not only producing absorption, but in the removal of amaurosis at the same time. Unless the capsule of the lens had been lacerated by the awl, I do not think that the acid could have had any power in causing absorption in a case of cataract which had existed for the long period of twenty-eight years. He is still under treatment.

CASE 11.

Cataract.

Mr. Monro, aged 28, at No. 16, Featherstone Buildings, twelve years ago, had violent inflammation, occasioned by the lash of a whip striking the left eye, from which time he has been unable to see more than the shadow of an object. He says that many have advised him to submit to an operation for cataract, but others have recommended him not to do so as long as one eye remained sound.

On the 16th of May, when he applied to me, I tried, as an experiment, the vapour of the prussic acid, which was employed for about three months. At the end of that time he could see different objects, and discern countenances, when the other eye was closed.

Afterwards he went into the country, where he remained without using any medicine. On his return to town, on the 18th of January, 1843, he called upon me, when I found the eye was

not improved in appearance. He is now again under my care, and has had the vapour applied five times. It appears to produce a very decided effect upon the vision. In three or four parts the cataract appears as if it had been operated upon with a couching needle.

This is a case of great interest, and it is impossible for any unprejudiced person to doubt the great absorbent powers of prussic acid in many diseases of the eye; but I am certain it will not be a general remedy for lenticular cataract (unless employed in its incipient state) without operation, unless aided by rupturing the capsule of the lens by the needle first. Many are the cases where we want such a solvent power after operations.

CASE 12.

Amaurosis.

Ann Weeks, of No. 19, Little Queen Street, aged 14, daughter of Thomas Weeks, carman,

52, Great Wilde Street, has been blind in her right eye since she was two years old. The left eye is unaffected. When two years of age she was taken to an Ophthalmic Hospital, where various modes of treatment were adopted for the recovery of the eye, until the month of March, 1842, when she went to another Ophthalmic Hospital, where she attended for six months, but received no benefit.

On the 16th of June the Rev. Peter Hall, of Long Acre Chapel, brought her to me; and when examined in a strong light, with her face towards the window, we could not perceive the slightest action of the pupil. Mr. Hall and I tried her with a sheet of white paper, moving it before her eyes several times, but she was perfectly unconscious of it. After the eye was exposed to the vapour of prussic acid for a short time the pupil acted slightly when exposed to light; and she was able, not only to see the paper, but to take hold of it with her hand, and could walk round the table when the left eye

was shut. She continued the vapour four or five times weekly for the space of six weeks.

When she left me the eye was so far recovered as to answer all ordinary purposes of vision, although not quite equal to the other.

I have examined her to-day (Jan. 20, 1843), and find the improvement continues.

CASE 13.

Amaurosis.

Frances Read, aged 14, daughter of — Read, 71, Fetter Lane, and one of the scholars at the Blind School, Queen Square. Her mother said that she took her daughter to an Ophthalmic Institution until she was tired. No good was effected. The parents of this case were unable to say when the blindness first developed itself. She has always been able to see a little with the right eye.

I was first consulted in this case in July, 1842, when the right eye appeared to have some

vision. The pupil acted under a strong light, but very sluggishly. She could observe objects very indistinctly with the left eye.

The prussic acid was employed almost daily, for three months, to both eyes. The right eye recovered so that she can now thread her needle. She is also learning to read.

Upon the pupil of the left eye the prussic acid does not appear to have the least effect.

As a general rule, I have found that when prussic acid does not dilate the eye, in amaurosis, much good is not to be expected from its use. In such cases I am inclined to believe that the disease is caused by pressure upon the optic nerve.

It is my intention to persevere in the application of the vapour to the left eye, with the view of ascertaining whether the sight may not be restored. I do not despair of success.

CASE 14.

Congenital Amaurosis.

George Pritchard, aged 7 years, son of Edward Pritchard, cab-driver, Black Bull Yard, Gray's Inn Lane, and one of the scholars at the Blind School, Queen Square.

This patient has been totally blind from birth. His case has been examined by almost all the eminent oculists of London, and has been taken to several hospitals; but all the medical men, without one exception, stated that they would not prescribe for him, as they could do nothing for him.

He was brought to me in May, 1840, at which time the eye appeared more than half sunk in each orbit, and the pupil, when exposed to the action of strong light, was fixed and immoveable. In fact, he had not the slightest perception of light.

Two drops of castor oil were put into his eye daily, for the space of three months, before the

pupil manifested a disposition to act. At each successive month there was a visible change in the size of the eye. When he left me, in Dec., 1840, he was not able to discern more than light from darkness.

He has visited me since the month of April, 1842, and has had, once or twice a week, the vapour of the prussic acid applied to his eye. He is now so improved that he is beginning to distinguish one object from another, and the eye is assuming a healthy appearance. From the progress that this boy has made the last two months, I think it probable that the medicine may ultimately effect much greater good.

The following letter was forwarded to me by H. Newnham, Esq., for the purpose of publication:—

"January 24th, 1843.

"My dear Sir,—Having, by the vapour of prussic acid, been nearly cured by yourself of an opacity of the cornea, which, for twenty years past, had rendered the sight of my left eye of little worth more than to distinguish light from darkness; and firmly believing that, when I shall be able to replace myself under your care, my sight will be perfectly restored; and having also, during my attendance at your house, witnessed the beneficial effects of this remedy on many other persons, the subjects of cataract, amaurosis, staphyloma, &c., I earnestly beg you will accept this testimony of my high opinion of its efficacy in these cases.

"I am yours gratefully,

"William H. Newnham, Surgeon, &c.

"Late of Alton, Hants."

"To A. Turnbull Esq., 48, Russell Square."

Extract from a letter of Professor Forbes, of King's College, Aberdeen, Jan. 23rd, 1843:—

"I seized the first hour which I could command after receiving your note to call on Milne, that I might see in what state he was, as I had not heard of him for some time. I was also desirous of having the particulars of his case accurately from himself.

"John Milne was a cooper, and in that capacity had gone with the whale-ships to Davis's Straits and Greenland for sixteen years.

"In July, 1836, he was seized with a violent inflammation in one of his eyes, which soon extended to the other. After two years he became so blind that he could not walk with safety in the streets, and after meeting with a severe accident from his want of sight, he gave up attempting to walk out alone.

"He continued for more than two years in this state, always becoming worse and worse in his sight. His eye-balls were covered with ulcers; he suffered extreme pain, except when

lying in bed with the room quite darkened; and was at various times confined for six weeks without being able to bear the admission of light into his room. During the whole of this long period he was under medical treatment by different surgeons without deriving any benefit, but, on the contrary, his case seemed to become daily more hopeless. The only relief, indeed, which he experienced was, he says, from the division of the blood-vessels, from time to time, with which the eye-ball was covered.

"In these circumstances he was brought to you by a surgeon who had attended him, and began, under your direction, the application of the prussic acid vapour. This gave him immediate relief, and in six weeks the whole ulcers had disappeared, light was no longer troublesome to him, and he saw quite well to go about his business and to read.

"This was his state in autumn, 1841, at which time I first saw him, and he continues equally well down to the present date. A slight

opacity in the cornea of both eyes still remains, and he cannot expose himself to the blaze of a very bright day or to violent winds for a length of time without experiencing a return of uneasiness. He is, however, quite positive, that had he continued under your care for a sufficient period, he would have quite recovered; and he has been planning a voyage to London to have your additional advice. I discovered, however, from him, that he has never got *the prussic acid of sufficient strength* since you left this; for it has never had the power of bringing on the state of the eye which the strong acid did, and which he found to be attended with so good effects. I have taken means to get the acid prepared for him of the right strength, and hope that its application will be as efficacious as he so confidently expects.

MAY 28 1980

"N.B.—The patient Milne was brought to me by George Rainy, Esq., Surgeon to the Aberdeen Ophthalmic Institution."

Extracted from the *Lancet* of December 31st, 1842:—

"Prussic Acid Vapour.—Mr. J. C. Atkinson, of Romney Terrace, Westminster, in a letter to the Editor, dated December 26th, after a few prefatory remarks, writes on this subject as follows:—A patient, aged 28, who had rather a severe attack of variola last May, became, after the recovery, subjected to staphyloma, one of the sequelæ of that formidable complaint. In this he was treated according to the approved methods, both at two public institutions and by private practitioners, for some months, without any apparent advantage, when I was applied to; I instantly determined on a trial of the prussic acid vapour, having read in your able journal an account of this new remedy some time before. After fourteen applications the opaqueness and prominence abated considerably, and the eye is now very serviceable, and nearly as useful as the sound one, no inflammation or appearance of irritation being observable. The plan adopted

by me was most simple: the affected eye, open, was placed over a two-ounce phial, containing about half an ounce of the acid, while the patient's hand, properly directed, was to retain it in the position that was thought necessary. The time occupied in this operation was from five minutes to a quarter of an hour. The eye became in a short time inflamed, the conjunctiva exhibiting the appearance of deep injection, which gradually disappeared in a few hours, but which was not accompanied by any pain. No paralysis of any of the appendages of the eye has resulted from the application. Such is the outline of the case. I feel assured that this remedy will prove a powerful auxiliary in the hands of a surgeon-oculist."

Extract from the *Lancet*, of January 7th, 1842. Cases in which the vapour of prussic acid was employed for the cure of Ophthalmic disease, by Donald J. Maclean, M.D., Lic. Roy. Col. Surg. in Edinburgh.

"I have been induced, for my own satisfaction, (in consequence of some observations made by Sir George Sinclair, who had witnessed its effects on patients under Dr. Turnbull's care), to give a very extended trial to the prussic acid in cases of ophthalmic disease which might be considered suitable for its application, and desire that the results of some of the cases should be submitted to the consideration of those of our profession who may take an interest in the subject. I have, therefore, made out a report of the following cases. In our present state of knowledge it is impossible to explain the *modus operandi* of the prussic acid; it will be sufficient, meantime, to observe accurately, and merely give the results of treatment. In what kind of cases it will be found most suitable can only be

determined by further inquiry and experience. If, however, the results prove permanent, the prussic acid must occupy a very high place amongst our remedial agents; and, possessing stimulant properties of a peculiar character, it may prove useful under many circumstances where diseases of the eye are not readily amenable to ordinary treatment.

"CASE 1.

"J. Mackay Reay, aged 11 years. Diffused opacity of the cornea, the result of a protracted attack of scrofulous ophthalmia. The vapour of strong prussic acid was applied, daily, for thirteen days, by exposure of the eye to it, during which period the cornea gradually got transparent. On the fourteenth day no remains of former opacity existed, and the vision of that eye was perfectly restored.

"CASE 2.

"MARGARET MACKAY, Thurso, aged 12 years. Severe rheumatic ophthalmia, of three weeks' duration. She complains of deep-seated aching pain in the eye-ball, greatly aggravated in the evening and through the night; no apparent disorder of the general health. The ordinary remedies were used, viz., leeching, blisters, calomel, and colchicum: they appeared to give no relief. The prussic acid was applied, daily, for about ten days; the relief following each application was extraordinary; the pain was trifling for the rest of the day. At the expiration of twelve days the intolerance of light, the injected state of the vessels on the sclerotica, and the other symptoms, entirely disappeared; and since September the little patient has continued quite free from any symptom of her former ailment.

"CASE 3.

"A girl, named MUNRO, from Mount Pleasant. Albugo of corneæ in both eyes, the result of an attack of acute conjunctival ophthalmia, which she had about two years ago, whilst residing in Dundee, where various means were tried for her relief. Vision was almost completely destroyed; she could not distinguish the outlines, form, or colours, of objects presented to her. At her own urgent request, but without holding out any prospect of her being benefited by it, the prussic acid was applied, daily, for about six weeks.

"11th day.—She states that she can see some objects. The corneæ appear more transparent. At the end of another week she was able (in the presence of Sir George Sinclair) to state the names of some objects, and to recognise, with accuracy, the colours of a variety of flowers which were presented to her in order to test the degree of progress that had been made. She can now

walk out and home to her own residence (a distance of a mile and a half from Thurso) without assistance. The improvement continues to be progressive, and the corneæ are now comparatively translucent.

"CASE 4.

"SINCLAIR SUTHERLAND, a labourer, aged 26 years. Staphyloma of one eye, and occlusion of pupil in the other, from effused lymph. In the centre of this there was a small opening which would admit the point of a fine needle. The prussic acid was applied, daily, for about three months. Felt great relief in the staphylomatous eye since its application; the prominence of cornea diminished at least one-half, and though formerly opaque, from repeated attacks of inflammation and ulceration, it is, at this date, quite translucent. The effusion of lymph in the other pupil has been disappearing gradually,

and the pupil is now about four lines in diameter. The patient is quite sensible of the improvement taking place, and can now name various objects presented to him.

"CASE 5.

"Mr. Alexander Macdonald, jun., merchant, Thurso, has suffered for the last six months from an affection of the retina, characterised by the following symptoms, viz., obscurity of vision, excessive intolerance of light, and deep-seated pain in the orbit. The external appearance of the eye is quite healthy, and the motions of the iris are natural; ascribable, he says, to too great application to business, and night reading: and, in many respects, the symptoms resemble those of inflammation of the retina. The ordinary treatment of this affection was resorted to with some benefit, and the eye kept constantly shaded; but the deep-seated pain con-

tinued, and the patient was getting uneasy. The prussic acid was applied, daily, for about six weeks. The relief obtained was great, and at the expiration of one month all the former distressing symptoms had totally disappeared; but I thought it advisable to continue the remedy for some time longer. The patient can bear a strong light with impunity, and exert his eyes on any object, however minute, without uneasiness, and is now quite well.

"CASE 6.

"MRS. M'KENZIE. Capsular cataract of one eye, of three or four years' duration. By way of experiment, the prussic acid was applied for about five weeks, daily. Absorption of the diseased structure was slowly taking place all this time; it has now entirely disappeared, and vision of this eye is quite restored. The result in this case was very satisfactory.

" CASE 7.

" Mrs. M'Beath. Suffered for many years past from a disease combining the characters of conjunctival and sclerotic ophthalmia. The prussic acid was applied, daily, for about three weeks, and at the expiration of that time the redness and angry appearance of the eye disappeared; the organ looked clear and healthy, and no pain whatever was felt. The patient can bear a bright light without uneasiness, and is now free from any symptom of her former ailment.

" Thurso, Caithness, Dec. 20, 1842."

Extracted from the *London Medical Gazette*, of January 13th, 1843:—

PRUSSIC ACID IN DISEASED CORNEA.

"*To the Editor of the Medical Gazette.*

"Perth, December 31st, 1842.

"Sir,—If you deem the following case of diseased cornea, &c., worthy of a place in the *Medical Gazette*, I shall feel myself obliged, while I have the honour to be, &c. &c.,

"G. K. H. Paterson,

"Surgeon."

"Case.—M. J., æt. 29, of a strumous diathesis, has been repeatedly attacked with inflammation in both eyes alternately, accompanied with more or less intolerance of light, and pain of head, ever since she had small-pox, about her ninth year: to relieve this her friends sought various means, but without any avail, and on entering her eighteenth year she became blind. The

catamenia had never appeared before she was twenty; and from that period onwards, till about four years ago, menstruation had always been scanty, and attended with the usual symptoms of dysmenorrhœa.

"On the 28th September, 1842, her eyes presented the following state:—The right cornea transparent, with an unusual quantity apparently of aqueous humour on the anterior chamber, so as to give it externally a somewhat conical aspect; iris of a dark red colour, and its pupillary edge contracted to the size of a pin-hole, and in close contact with the capsule of the lens. No vision in this eye remaining. That of the left cornea was all but opaque, from coagulated lymph between its layers, with the exception of a small lucid segment, at the upper and outer margin of its circumference; behind which, on the eye being turned downward and inward, the pupil could be seen contracted also, and of an oblong shape, along with a great increase of aqueous humour in the anterior

chamber, and the cornea, to external appearance, much more bulged forward than that of the right. With this eye she could only distinguish an object when it was rolled downward and toward the inner canthus, on being passed between her and the light.

"This ill-fated woman being altogether an object of charity, her friends solicited me to take up her case, of which I was not at all sanguine. However, having previously perused, with much pleasure, a brief extract by Dr. Turnbull, on the fumes of prussic acid as a valuable remedy in certain diseases of the eye, I was led to make trial of a few applications of it in the above case, according to his method; and I must candidly confess, that ere long I was completely astonished on observing the rapid effect it produced on the opaque cornea before mentioned; more so, as the longer I cautiously and perseveringly used it, the greater in proportion did the inspissated lymph become absorbed, and the layers of the cornea, over a wide space,

begin to assume their natural transparency, as also in dilating the pupil to a considerable extent; so much, indeed, that before one month under its use, she could observe objects in a very different light, and ere another had elapsed, she could find her way out of doors by herself, and come to my residence for any medicine she required; since which she has gone on gradually to progress favourably, without any more applications, and the vision is now sufficient to enable her to go about free from the dread she had before, or the use of a guide.

"During the use of this potent remedy, it struck me very forcibly that the extract of belladonna might assist the case considerably (more especially when one had reasons for suspecting adhesions to exist), in keeping up a greater effect on the pupil than that arising from the use of the acid, which every one will admit at once, who has seen its powers depicted upon the human eye, to be only temporary, and, I believe, still less so in disease of the cornea and iris than

in any other incident to such an organ. With such an object in view, and after once applying the extract, smeared round the eye, at bed-time, I soon found it to be also of considerable service, along with the daily use of the fumes of the acid, which were both, afterwards, employed assiduously in this manner, for the rest of the treatment.

"But in drawing my remarks to a close at this time, I cannot refrain from saying less, in regard to the utility which is likely to arise from this medicine, when properly applied, than that, in such a similar case as I have stated, I would not for a moment hesitate again in giving it and the extract of belladonna a fair trial, so convinced am I now, after employing it pretty freely by itself, in different affections of the same organ (in all of which more or less improvement of vision was manifested), of its potency to remove many of those formidable diseases of the eye, more especially that of the cornea, which are so often the opprobium of our art. However, be-

fore I have done, it is but justice to ascribe this noble discovery to Dr. Turnbull, whose indefatigable research has not failed to find out others, no less wonderful in their effects, as they are useful to mankind; and for such he cannot but claim to himself the best thanks of the profession at large."

CHAPTER II.

ON THE ACTION OF ESSENTIAL OILS, &c.

In October, 1835, a paper of mine appeared in the *London Medical and Surgical Journal*, stating the beneficial action of a concentrated tincture of capsicum for diseases of the eye, by rubbing it for a few minutes daily over the forehead and temples with a sponge.

Soon after this I was induced to try what effect essential oils, possessing powerful stimulating properties, might possess in removing amaurosis and diseases generally of the eye. The formulæ which I use are—

EMBRO. CARYOPH. CO.

℞—Ol. Caryoph. . . .
— Lavand . . . āā ʒiv.
— Cinnamom. . . . ʒss.
Sp. Vin. Rect. . . . ℥iij.
M. Ft. Embro.

EMBRO. PIMENT. CO.

℞—Ol. Piment. . . .
— Rosmar. . . . *āā* ʒss.
— Cinnamom. . . . ʒss.
Sp. Vin. R. . . . ʒiij.

M. Ft. Embro.

Finding great utility to arise from the use of the cloves and pimento, it appeared by no means undesirable or hopeless to administer them internally for the same complaints. In order to shield the pungency of these oils I united them with calcined magnesia, which, by its very strong affinity with these essential oils, forms a body nearly solid, and thereby removes all pungency, warmth, and even smell; for, in this state, it requires to be held in the mouth for a considerable time before it produces any warmth or pungency. They are thus rendered easily taken, in sufficient quantity, without heat or uneasiness.

Some children are the subjects of many diseases of the eye, producing blindness from opacities, &c. I ordered the same to be made into a powder, in which form it can be taken easily

in any vehicle, without exciting disagreeable warmth. The formulæ are—

PIL. CARYOPH. C.

℞—Ol. Caryoph. . . .
Magnes. Cal. . . . *āā* ʒi.
Ol. Cinnamom. . . qtt. vi.

M. Ft. Pil. xxiv.

PIL. PIMENT. CO.

℞—Ol. Piment. . . .
Magnes. Cal. . . . *āā* ʒi.
Ol. Cinnamom. . . qtt. vi.

M. Ft. Pil. xxiv.

The dose of these pills is one or two thrice a day.

Expedition is required in the making of these pills, otherwise it becomes a solid mass, and unable to be formed into pills.

I have found an alcoholic extract of cloves and pimento, made into pills with magnesia, equally efficacious.

PULV. CARYOPH. C.

℞—Ol. Caryoph. . . .
Magnes. Calc. . . . *āā* ʒi.
Ol. Cinnamom. . . ʒi.

M. Ft. Pulv.

PULV. PIMENT. CO.

℞—Ol. Piment. . . .
Magnes. Calc. . . . āā ʒi.
Ol. Cinnamom. . . ʒi.
M. Ft. Pulv.

The dose of these powders is from four to eight grains thrice a day.

In the making of these powders, the oil and the magnesia ought to be well mixed and allowed to remain for half-an-hour, then reduce the mass to fine powder, and keep it in glass bottles with stoppers.

These medicines, by their local application, increase the circulation, and give a greater supply of blood to the deficient organs, and thereby produce natural tone and power. They are equally useful in removing chronic diseases, where thickening and opacity have taken place, by rousing into activity the absorbant and nervous influence by their stimulating power. Among many others possessing the same power, is a concentrated tincture of pepper nigrum, ginger, &c.

The internal administration has been found much more serviceable in chronic diseases of the eye, such as opacities, &c., than in amaurosis.

The manner of using the embrocations is, by rubbing the forehead and temples with a sponge saturated with the liquid. This plan alone, kept up daily, is beneficial; but the efficacy is more than doubled if another sponge, with warm or cold water, is rubbed upon the forehead for a minute afterwards. By this the energy of the medicines in inducing a free circulation is greatly augmented, and greater warmth is rapidly developed. The rationale, in my opinion, is, that the large quantity of carbon in some of the essential oils, and its solubility in alcohol, permits it, by the friction, to pass through the cuticle and unite with the oxygen. As the oils are very insoluble in water, and as the alcohol has a strong affinity for the water, the carbon is more readily disengaged, and forms a union with the oxygen in the vessels, and thereby produces heat and great activity of circulation. I have

no doubt that that is the reason why many bodies are so pungent, when put into the mouth. I have only given two cases—viz., John Plunkett and William Dale—as illustrative of the action of the essential oils.

It will be seen in the following extract from Tyrrell on the Eye, "Functional amaurosis arises from a deficient supply of red blood." He says—

"In these cases there always exists, I believe, a want of general power and vigour of circulation at first; but in some instances of long-continued affection of this kind, the local circulation never regains its proper force and fulness; and the supply of blood is inadequate to support the functions of the part, although the general system recovers its natural tone and power."

I think this statement very correct, and therefore the embrocations producing so much additional circulation, point out at once the essential oils, along with the water, as its proper remedy. I here quote Magendie, who corroborates the

plan which I adopt—viz., the medicines being most useful when applied to the forehead and temples in amaurosis:—

EXTRACTS.

"Lectures on the Physiology of the Nervous System, delivered in 1836, in the College of France, by Majendie." — *Lancet, April 29th,* 1837, *page* 186.

"The integrity of both the optic and the fifth nerves, then, is indispensably necessary for the exercise of vision, which is lost whenever either of these nerves is separately destroyed."

Lancet, May 20th, 1837, *page* 279.

"Nervous pains of long duration and the greatest intensity have been quickly removed by topical applications to the temporal region."

Lancet, page 280.

"Amaurosis cannot be considered as a simple affection of the optic nerve; at least, in the actual state of the science, it is generally impossible to say that the fifth nerve has no connexion with the loss of sight, and in many cases the

connexity is evident. Hence a rule which I invariably follow of addressing my remedies, in the first instance, to some of the branches of the frontal nerve; and I have frequently had the satisfaction of observing some of these cases of incomplete amaurosis improve sensibly under the influence of therapeutic agents applied to the fifth pair. I would go even further and say, whenever you have a case of incipient amaurosis, commence by acting on this nerve, for it is at once the most expeditious and efficient method. I cannot, however, quit this point without assuring you that no physician is capable of treating diseases of the eye unless fully in possession of the facts I have just had the honour of explaining to you. These facts are daily becoming more numerous and more convincing, and already a considerable number of our younger practitioners, who devote themselves to the study of diseases of the eye, are fully aware of the immense influence of the fifth pair of nerves over the exercise of vision."

Lancet, page 281.

"To resume, then, what I have said concerning the sense of vision and our several experiments, allow me once more to impress you with the idea that sight can never be exercised in a complete and perfect manner without a certain influence of the fifth pair of nerves; destroy that influence, and you destroy vision. This is all we know upon the matter; for up to the present moment we have been unable to determine how far this influence extends, or in what manner it is communicated."

Case of Amaurosis.

John Plunkett, Mermaid Gardens, Hackney, formerly an attorney's clerk, visited me in May, 1837, and stated that he had been blind and obliged to be led about by his children for the last four years. For five years previously his sight had been gradually diminishing. He

further stated that he was much troubled with floating images before his right eye, as well as with clouds resembling animals, strange goblins, and sometimes with flashes of lightning, vivid red, changing into light blue. One great peculiarity of this miserable man's case was, that when he threw back his head there appeared a stream of blood flowing from the top of the right eye to the centre, where it formed into a circular pool about the size of a split pea, but ultimately it became as large as a shilling. It often remained a considerable time, and then diminished gradually in red streaks. This was a matter of great alarm to him. He had been at several Ophthalmic Institutions for nine years previously to his visiting me. He has had electricity, tartarate of antimony, blisters, issues, stramonium, mercury (until it produced dysentery), and almost every kind of treatment that could be suggested, tried, but to no purpose.

When I saw him the pupil was immoveable, and the eye dull in the anterior, and very

obscure. The left eye was destroyed. He could not discern, in a bright light, the shadow of white paper when it was moved between him and the light.

The compound embrocation of oil of cloves was used by rubbing it upon the forehead and temples daily, and in the space of twelve days he was able to discern objects and could touch them. In two months he could put his finger through a ring when held by another person. He continued occasionally under my care for about a year, during which time the embrocation was regularly used. He could walk alone, and the eye was generally useful, but he was not able to read with it. He could see objects at the distance of thirty feet.

The last month he has visited me once or twice a week, for the purpose of having the prussic acid vapour applied to his eye, to ascertain if the sight could be restored sufficiently to enable him to follow his occupation as a clerk. In this case an advantage has been gained. The

patient is now able to read a little, which, previously to the use of the prussic acid vapour, he was unable to do.

Amaurosis.

William Dale, boot-maker, of 14, Clarence Gardens, Regent's Park, visited me in July, 1837. He stated, that with his right eye, for the last year, he could only discern light from darkness; and that for several months before he was much troubled by clouds and spots floating before his eyes. The evening gaslight produced a continued flashing of light from his eye. The light looked as if surrounded by all the colours of the rainbow.

He first went to an Ophthalmic Hospital, where he was blistered on the temple and salivated. Nux vomica produced such an effect upon him that all his limbs were involuntarily twitched, so as to alarm them exceedingly. He

then left, and went to another institution for three months; and at length was told that the optic nerve was injured, so as to render a restoration of vision impossible. The left eye, when looked into, had a dark green, muddy hue, and the pupil was exceedingly dilated and immoveable. He was unable to distinguish an object placed before his eyes; yet he states that he could distinguish light from darkness.

When he applied to me I had the compound embrocation of pimento applied occasionally to the forehead and temples, by means of a friction sponge. During the first month he was able to discern objects and colours. The pupil acted under the impression of light almost equal to the good eye. It was not until this application had been used for a year that the patient was enabled to read with the eye.

I saw the patient this day (the 25th of Jan. 1843). The eye, upon examination, appeared to be in a healthy state. The sight was not so good as when he left me, and after he left off the

applications, but this he attributes to the circumstance of his general health not being good, owing to his having suffered from intermittent fever.

In January, 1834, I published the first edition of my work upon Veratria, and gave an account of two cases of amaurosis, combined with tic-doloreaux, cured by the external application of veratria. I there suggested that it was probable that amaurosis, uncombined with tic-doloreaux, might be removed by applications of a stimulating nature to the branches of the fifth pair of nerves. No notice of this suggestion having been taken by medical men, I determined to put the plan into execution, and employed a surgeon to carry it into effect in St. Giles's Workhouse, where blind cases were given me for that purpose. I here extract the case of Eleanor M'Cartney, for the purpose of showing the power of capsicum when rubbed upon the forehead and

temples. I select this case of amaurosis for several reasons; she was the first patient on whom I tried the efficacy of capsicum. She had had, seven years previously, a stroke of palsy, which removed all power of the right side. The only power recovered was that of the right arm. The hearing was perfectly gone; and she had not had the least perception of sight for seven years. It is now nearly eight years since her recovery; and, at the present date (27th of Jan. 1843), she can read perfectly well; and has never had another application since the three first days. It will also satisfy the minds of many that a recovery by stimulating applications of this description, is not of a temporary nature.

I here quote the case as given in my work on "Painful and Nervous Diseases," page 131.

"Eleanor M'Cartney, aged 40, an inmate of St. Giles's Workhouse, was attacked, seven years ago, with palsy of the right side, when perception of light and sound, in the right eye and ear, was extinguished. There was a constant

and profuse flow of tears, and the pupil was immoveable.

"The treatment commenced on the 19th of October, 1835, and was continued for three days only. On the first day after the commencement of the treatment there was a great abatement of the flow of tears, and she could perceive light and light-coloured objects. On the second day she could see a watch, and direct her hand to it, and distinguish the palm from the back of the hand. On the third day she could distinguish objects with great facility. There was no further application of the remedy after the third day. On the fifth day she could read a duodecimo prayer-book with ease. On the seventh day the flow of tears ceased, the pupil moved readily, and her sight and hearing were perfect. She is still an inmate of the workhouse, and may be seen on application to the matron, Mrs. Bailey."

The next case which I select from the same work is that of ALEXANDER CRUIKSHANKS, Esq, of Strathcathro Castle, Forfarshire. When this case came under my care he was undergoing the necessary preparation for an operation for cataract. The peculiar difference in the removal of cataract without operation is, that the person afterwards needs no cataract glasses, as will be seen from the extracts of two of Mr. Cruikshank's letters to the author. It is now seven years since his recovery, and he is at the present date perfectly well.

"March 8th, 1836.—My right eye was affected with dimness, or defect of vision, so long ago as the year 1810, and commenced by the deceptious effect of seeing two objects distinctly where there really was but one. This deception of double vision gradually disappeared as the vision of the eye became imperfect. The other eye was not affected until about four or five years ago. The affection of this, like the other, commenced and continued, with the double vision,

until Dr. Turnbull's remedy was continued six weeks, when it totally disappeared. The right eye, by this time, was restored to such a healthy state, that I could read 'Blackwood's Magazine,' or the leading article of a newspaper, without glasses, and the smallest print with them. By the way, it may be proper to mention that it was not till July last, 1835, that I ascertained, beyond question, the nature of the complaint with which I was affected. In that month I applied to an eminent oculist, who, after two examinations, informed me the complaint was cataract."

"May the 10th, 1836.—I am favoured with your letter of the 3rd instant, intimating that you had heard it reported that the benefit I had derived from your treatment of my eyes had disappeared. The only person with whom I have had any communication on the subject is my friend, Mr. ———, whom I informed that the remedy was applied to my forehead and temples, by friction only, without your having prescribed or

administered one grain of medicine, or having confined me to the house, or directed the slightest change in my former habits of living, either as to drink or diet; and that my sight was good enough to read, write, fish, shoot, and to see a pin on the floor at the most distant corner of an ordinary-sized room. What more can, or ought, a man of 67 years of age wish for in this respect? But if any are sceptical as to your mode of treatment, let them produce a testimony like this of a superior method.

"My dear Sir,

"Yours very faithfully,

"ALEXANDER CRUIKSHANKS."

"A. Turnbull, Esq., M.D."

The only other case which I intend to quote, in order to show that the recoveries are lasting when the essential oils have been employed, is the case of Dr. Kent. This gentleman continues perfectly well. It is now nearly seven years since his recovery. He had, alternate days, rubbed upon his forehead and temples, with the friction sponge, the compound clove and pimento embrocation, quoted from page 136, on "Painful and Nervous Diseases."

The following case was communicated to me, by letter, from the patient, Dr. Kent, who was for several years a physician in extensive practice at Walsall, in Staffordshire, now residing in Harley Street, Cavendish Square.

"39, Duke Street, St. James's,
"April 19th, 1836.

"My dear Sir,—Thinking that an outline of the principal features in my case might be perused with advantage by many who take an interest in the success of your efforts, I have sub-

joined it in as concise a form as justice to the subject would admit. Upon my return from a very cold ride in a violent storm of snow and sleet, on the evening of the 29th of January, 1836, I discovered that the sight of my right eye was gone. In a few hours violent inflammation supervened, and continued several weeks, in spite of the most vigorous and energetic treatment, its principal seat being the optic nerve, and subsequently the iris. The inflammation was at length overcome, but vision was not restored; and the irritability in both eyes was so great as to render it absolutely necessary not only to avoid all attempts to use them, but also to exclude them from the light. The sight of the right eye was entirely, and, as I feared, irrecoverably gone; its pupil contracted almost to the size of a pin's point, and immoveable. I removed to the country, by the advice of the professional friends who had attended me, in the hope that, as my general health improved, the irritability would subside, although they gave me

no reason to expect that the organ, originally diseased, would ever again prove of much use to me. In this opinion a medical gentleman of high celebrity, in Oxford, coincided; but he strongly recommended me to consult some of the most eminent oculists in the Metropolis. A much esteemed friend having mentioned your success in the treatment of many obstinate and almost inveterate cases, I placed myself under your care on the 2nd of April, and had the satisfaction to find, that after the lapse of three or four days, a very considerable alteration was observable in the appearance of the right eye, and that my perception of light, and afterwards of objects, became more distinct. The improvement has been regularly progressing, and I am now (the 19th of April) able to read with ease with that eye which, only three weeks ago, could scarce distinguish light from darkness. I may also add, that the irritability which so long annoyed me, ceased almost immediately after your

first application, and I have not since been troubled with it.

"I am, my dear Sir,

"Yours, very sincerely, and much indebted,

"BENJAMIN ARCHER KENT, M.D."

"A. Turnbull, Esq., M.D., &c. &c."

THE END.

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FRICTION SPONGE.

See Plate, page 66.

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Works by the same Author.

"Of the great efficacy of aconitina in neuralgic and rheumatic affections, no one can entertain any doubt who has submitted the remedy to trial."—*Pereira's Elements of Materia Medica, vol. II., page* 1812.

Aconitine, discovered by Geiger and Hesse, in Aconitum Napellus and A. Ferox.—Our knowledge of this base is very limited. There is reason to think, from the experiments of Dr. Turnbull, either that the plant contains two bases, or that the aconitine of Geiger and Hesse is an *altered product.*

"Dr. Turnbull has succeeded in producing, but with difficulty and in small quantity, an aconitine possessing in perfection all the active properties of the plant. It produces *numbness* of the *tongue* when applied to it, and is said to *contract the pupil*, whereas Geiger's aconitine *dilates* it. In obtaining the aconitine of Turnbull, much appears to depend on the freshness of the plant; and the alkaloid itself is easily decomposed, especially by alkalies.

"As a remedy in neuralgia and similar painful and obscure diseases, the aconitine of Turnbull possesses most valuable powers. Could it be obtained at a reasonable price, it would be extensively employed. At present, however, only one manufacturer has been able to obtain it, and that in small quantity. The aconitine of Geiger and Hesse does not appear to possess the same action on the system.—*Turner, Leibeg, and Gregory's Elements of Chemistry*, 1842, *page* 1167.

CORRIGENDA.

In part of the impression the following errors occur :—

Page 37, line 14, *for* " 28 " *read* 8.

Page 38, line 15, *for* " months " *read* weeks.